

Fact Sheets

This section of the RAB Documents Page contains examples of fact sheets on contamination sites at the Presidio of San Francisco that were prepared by citizen members of the Presidio Restoration Advisory Board (RAB) between 1997 and 1999.

The history of the Presidio RAB is described in the Final Report of the Presidio of San Francisco Restoration Advisory Board, which can be found at this link: [Final Report](#). The purpose of the RAB was to provide community advice and a forum for public discussion of the environmental cleanup of the Presidio, a former U.S. Army base that became a national park in 1994.

The remediation of environmental contamination from petroleum hydrocarbons, hazardous substances and lead-based paint in soil was begun by the Army in the 1980s, taken over by the Presidio Trust in 1999, and completed by the Trust in 2014. The RAB was founded in 1994 and voluntarily disbanded when the remediation was certified as complete by state regulatory agencies in 2014.

These fact sheets were written at a time when the Army's Final Feasibility Study Report of 1997 was still under discussion. This study addressed several dozen sites, including former military waste landfills, in a group known as the Main Installation. It proposed to leave most of the contamination in place, in some cases with soil covers, ongoing monitoring, land use restrictions and/or limited excavation. As is recounted in the RAB Final Report, the Presidio Trust later conducted additional investigations after taking over the cleanup responsibility in 1999, and in 2003 issued a Revised Feasibility Study proposing a more extensive cleanup.

RAB community members used the fact sheets in both internal RAB deliberations and meetings with neighborhood, environmental and civic organizations to discuss the view that a more thorough cleanup was needed for the new national park. The fact sheets were based primarily on information in the Army's Remedial Investigation Report on the sites, and additionally on independent research and observations by RAB community members.

The sites described in the fact sheets in this file include:

1. Landfill 2
2. Landfill 4
3. Landfill E
4. Battery Howe Wagner
5. Commissary Building / Building 609
6. El Polin Spring
7. Nike Missile Site
8. Buildings 937 and 979 at Crissy Field
9. Sites Not Investigated

Contamination FACT SHEET

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board
Contact:

Site

Landfill 2

Description

Landfill 2 is located in the southeastern quarter of the Presidio, 200 feet northwest of Julius Kahn playground and 300 feet southeast of El Polin Spring, and is accessible by Quarry Road. Placed over the now-buried central tributary of the Tennessee Hollow Watershed, the landfill is approximately 400 feet long by 200 feet wide with thickness of fill material of up to 20 feet and a total volume of approximately 13,000 cubic yards. Part of it covers a former small reservoir linked to the El Polin Spring system in the 1800s; the lower part of the landfill lies above a layer of silt and clay that swells during the rainy season. An intermittent spring develops in the rainy season and flows on the downward slope of the landfill toward El Polin Spring. Eucalyptus trees, a thicket of natural vegetation and grasses now cover the area. The area was used as a dump site from sometime after the turn of the century until the 1970s. Historical documentation of the contents is limited, but the Army's Remedial Investigation indicates the presence of glassware, bottles, charred wood ash, zones of hospital debris, and general building materials such as concrete, bricks, asbestos-wrapped pipes, slate piping and roofing materials. A steel drum exposed on the surface of Landfill 2 gives an indication of what may be buried at other locations in the landfill.

Contaminants of Concern (found in amounts above background or regulatory standards)

Soil: Polynuclear aromatic hydrocarbons (PAHs), DDT, the herbicide Mecoprop (MCP) and diesel fuel range petroleum hydrocarbons (TPH-D). Antimony, barium, chromium, copper, cyanide, lead, mercury, silver and zinc.

Groundwater: Cadmium, manganese, aluminum, chromium, iron, nickel and diesel range petroleum hydrocarbons. An unknown petroleum hydrocarbon was detected in a water sample taken from the exposed steel drum.

Hazards

Hazardous chemicals in landfill materials, soil and groundwater endanger human health and the environment. Surface water from Landfill 2's intermittent springs could carry pollution downslope to El Polin Spring.

Army Recommendation

Limited removal of soils referred to as "hot spot excavation." No cleanup of groundwater. "Institutional controls" (restrictions on future uses) for groundwater.

Community Reaction *

Army recommendation insufficient because insufficient and future uses not adequately considered. The removal of soils is appropriate, but "hot spot" excavation alone is insufficient. Groundwater contamination needs to be monitored over time. The Army's suggested remedies do not adequately address the future use of the site, which includes restoration of the riparian corridor in the Tennessee Hollow Watershed.

Community Cleanup Alternative *

Soil: Remove more and possibly all of the landfill material and affected soils. Landfill 2 is a candidate for complete removal of all soils under criteria set forth in the U.S. Environmental Protection Agency's "CERCLA Municipal Landfill Presumptive Remedy to Military Landfills." More complete excavation is also called for by the Presidio Landfill Closure Principles adopted by the Presidio Restoration Advisory Board in April 1997, which state that landfills should be excavated, fill materials recycled where appropriate, and material from fillsites consolidated at modern, appropriately-designed and monitored off-site disposal facilities.

Groundwater: Monitoring over a period of five years is recommended. If the contaminated soil is removed the possibility of continued contamination of groundwater will likely be sharply curtailed and the monitoring costs in the Army's recommendation will be reduced.

* Community suggested cleanup alternative concept currently endorsed by:

Contamination FACT SHEET

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board
Contact:

Site

Landfill 4

Description

Landfill 4 was used for Presidio on-site waste disposal from approximately 1946 until as recently as 1981. Located in the middle of a eucalyptus grove in the western uplands of the Presidio, Landfill 4 is to the west of Wright Loop between Central Magazine Road and Hitchcock Street. It is less than 100 yards east of the Presidio's Boy Scout Camp on Central Magazine Road. According to Presidio personnel working at the time of disposal activities, materials dumped in Landfill 4 included chemical wastes from many Presidio facilities. Up to 14 feet of undocumented wastes and fill material were dumped into a 5-acre depression. A cap of up to three feet of soil, brick, glassware, gravel, concrete and pipes was added when the landfill became inactive in 1981.

In the middle of the landfill is a cluster of at least eleven large dead eucalyptus trees. It is not known why these trees died; Army representatives have suggested the cause may be bulldozer damage. Sampling in four out of five Landfill 4 test pits detected 13 different pesticides as well as two occurrences of polychlorinated biphenyls (PCBs). Auto battery caps, plastics and a "zone of green corrosive material as 10 inch thick pockets or lenses" were also identified in test pits at Landfill 4.

Contaminants of Concern (found in amounts above background or regulatory standards)

Soils: aluminum, antimony, barium, beryllium, copper, chromium, iron, lead, manganese, mercury, nickel, and zinc. Chlordane and dieldrin are 2 of the 13 pesticides detected. PCBs, volatile organic compounds (VOCs), diesel range petroleum hydrocarbons, semi-volatile organic compounds (SVOCs), unknown hydrocarbons, cresol, polynuclear aromatic hydrocarbons (PAHs), 4-methylphenol.

Pesticides have been detected in the native material below the landfill.

Groundwater: Copper, cyanide, mercury, chromium, barium.

Hazards

Landfill 4 is an ongoing potential hazard to human health and the environment. A large variety of heavy metals and chemicals exists at the site. The ecological risk assessment in the Army's Remedial Investigation suggests that the site may be hazardous to common birds and small mammals. The Army's proposal to limit contact with polluted soil through land use restrictions would mean that the site could not be used as open space, despite its close proximity to the Boy Scout Camp.

Army Recommendation

No cleanup or disposal of contaminated soils. No cleanup of groundwater. "Institutional controls" (land use restrictions) to prevent contact with contaminated soil or landfill contents. Monitor groundwater.

Community Reaction *

Army recommendation inadequate because cleanup insufficient and future open space use jeopardized. The contaminated soils and hazardous wastes should not be contained at the site for future generations of Presidio visitors. The Army's suggested remedies of no action and monitoring do not adequately address the possible range of open-space future uses at the site.

Community Cleanup Alternative *

Soil: Remove more and possibly all of the landfill material and affected soils. Landfill 4 is a candidate for complete removal of all soils, under criteria set forth in the U.S. Environmental Protection Agency's "CERCLA Municipal Landfill Presumptive Remedy to Military Landfills." More complete excavation is also called for by the Presidio Landfill Closure Principles adopted by the Presidio Restoration Advisory Board in April 1997, which state that landfills should be excavated, fill materials recycled where appropriate, and material from the fillsites consolidated at modern, appropriately-designed and monitored off-site disposal facilities.

Groundwater: Monitoring over a period of five years is recommended. If the contaminated soil is removed the possibility of future contamination of groundwater will likely be sharply curtailed and the monitoring cost in the Army's recommendation will be reduced.

* Community suggested cleanup alternative concept currently endorsed by:

Contamination FACT SHEET

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board
Contact:

Site

Landfill E

Description

Landfill E is located approximately 900 feet to the northwest of El Polin Spring and fills the western tributary of the Tennessee Hollow Watershed. It is within an area of periodic fresh water flows that move downstream to the Crissy Field Wetlands Restoration Project. It is now partly covered by the Pop Hicks baseball field. Containing 76,000 cubic yards of material up to 37.5 feet thick, Landfill E is the largest single landfill among the 17 fill sites at the Presidio and is arguably the most toxic. Dumping and possible burning at the site began before 1946 and continued until approximately 1973. As with other landfills at the Presidio, there is no documentation of the wastes deposited at the site. Between 1910 and the mid-1920s the site was used as a target range and projectiles were fired into the head of the now-filled canyon.

Test pits trenched into the fill material contained potential incinerator waste, melted glass and slag, and burned aerosol cans. Burned bone fragments among ash and incinerator material, oily soil smelling of petroleum, glass, rubber syringe stoppers, cans and plastic have also been found at Landfill E. It is likely that materials were burned at the site.

Groundwater well test yields suggest that the area could produce enough water to be considered a drinking water supply.

Contaminants of Concern (found in amounts above background or regulatory standards)

Soils: Antimony, barium, cadmium, silver, mercury, copper, chromium, nickel, lead, zinc, arsenic, beryllium, selenium, vanadium. *Pesticides:* DDT, delta-BHC and endrin aldehyde. *Chlorinated herbicide:* MCP. *Volatile organic compounds (VOCs):* benzene, toluene, PCBs, diesel and gasoline range petroleum hydrocarbons and 10 unknown VOCs. Sixteen different semi-volatile organic compounds (SVOCs) were detected at 28 test locations.

PCBs and diesel range petroleum hydrocarbons were also detected in native material below the landfill.

Groundwater: VOCs, chromium, manganese, diesel range petroleum hydrocarbons.

Hazards

Landfill E is an ongoing potential hazard to human health and the environment. A large variety of heavy metals and chemicals exists at the site. The ecological risk assessment in the Army's Remedial Investigation suggests that the site may be hazardous to plants, common birds and small mammals. The Army's proposal for a soil cover and land use restrictions to prevent contact with contaminated materials does not adequately address the possible range of open-space future uses at the site.

Landfill E potentially endangers the periodic fresh water flows to the Crissy Field Wetlands Restoration Project. Groundwater monitoring reports indicate that groundwater has been influenced by fill materials.

Army Recommendation

Soil cover over landfill contents to contain wastes in place. No cleanup of groundwater. "Institutional controls" (land use restrictions) to prevent contact with contaminated soil or landfill contents. Monitor groundwater.

Community Reaction *

Army recommendation inadequate because cleanup insufficient and future open space uses jeopardized. The contaminated soils and hazardous wastes should not be contained at the site for future generations of Presidio visitors. The Army's suggested remedies of soil cover and monitoring do not adequately address the projected future reuse of the site—the restoration of the riparian corridor in the western tributary of the Tennessee Hollow Watershed. Containing and maintaining this amount of waste at the Presidio is an unnecessary and unwarranted fiscal burden on the Park and the Presidio Trust.

Community Cleanup Alternative *

Soil: Remove more and possibly all of the landfill material and affected soils. Landfill E is a candidate for complete removal of all soils under criteria set forth in the U.S. Environmental Protection Agency's "CERCLA Municipal Landfill Presumptive Remedy to Military Landfills." More complete excavation is also called for by the Presidio Landfill Closure Principles adopted by the Presidio Restoration Advisory Board in April 1997, which state that landfills should be excavated, fill materials recycled where appropriate, and material from fill sites consolidated at modern, appropriately designed and monitored off-site disposal facilities.

Groundwater: Monitoring over a period of five years is recommended. If the contaminated soil and fill material is removed the future contamination of groundwater will likely be sharply curtailed and the monitoring costs in the Army's recommendation will be reduced.

* Community suggested cleanup alternative concept currently endorsed by:

Contamination FACT SHEET

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board

Contact:

Site

Battery Howe/Wagner

Description

Coastal mortar battery fortification buried with artificial fill, debris, and rubble from former storage and maintenance buildings surrounding the battery.

Contaminants of Concern

Soils: The Army found metals, petroleum hydrocarbons, volatile organic compounds (acetone, MEK), inorganic compounds, polynuclear aromatic hydrocarbons (PAHs), phthalates in the fill material. The Army has determined that antimony, chromium and nickel are chemicals of potential concern (COPC).

Groundwater: In groundwater, the COPCs, carbon tetrachloride, 1,2-dichloroethane, chromium, mercury, and bis(2-ethylhexyl) phthalate, petroleum hydrocarbons, were found.

Hazards

Battery Howe/Wagner may be an ongoing potential hazard to human health and the environment. Groundwater and surface water may be threatened by chrome contamination. The site may contain unknown soil and groundwater contamination that is a hazard to public health and the environment.

Army Recommendation

The Feasibility Study recommends no further action at this site.

Community Reaction *

Army recommendation is inadequate because of controversy over groundwater issues, lack of sufficient investigation to determine the sources of contamination, and a continuing threat to the groundwater.

Community Cleanup Alternative *

Further investigation to determine the sources of soil and groundwater contamination. Removal of contaminated fill or soil that is causing groundwater contamination. While recent EPA analyses indicate that chrome VI contamination is definitely present in the soil and groundwater (that could not be naturally occurring), the Army insists that the chrome is naturally occurring from serpentine bedrock and is ignoring the issue. Surface water springs downslope of the battery have never been sampled for contamination. Other potential sources of contamination (i.e., demolished maintenance buildings surrounding the battery) should be further investigated. The Army contends that there is no groundwater resource in the battery area even though surface springs are present here.

* Community suggested cleanup alternative concept currently endorsed by:

***Contamination* FACT SHEET**

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board

Contact:

Site

Commissary Building 609

Description

Large commissary building constructed in 1987 to replace old commissary complex located at Marina Gate. Prior to 1987, building 609 was another PX building at a different location.

Contaminants of Concern

Army records indicate a small pesticide spill occurred inside building 609 in 1980. A former motor pool complex and railroad gasoline pumping station may have contaminated the site with petroleum hydrocarbons, volatile organic compounds, lead, inorganic compounds, polynuclear aromatic hydrocarbons (PAHs).

Hazards

The other potential contaminants of concern (listed above) have not been the subject of investigation and sampling by the Army. The site may contain unknown soil and groundwater contamination that is a hazard to public health and the environment.

Army Recommendation

The Feasibility Study recommends no further action at this site.

Community Reaction *

Independent research, by community members, indicates the history of this site is may be erroneously reported. Army documents indicate the existing commissary building, constructed in 1987, was built on a demolished motor pool complex and railroad gasoline pumping station. The motor pool complex-pumping station is not recognized in the Feasibility Study report. The pesticide spill reported in building 609 (1980) occurred at the old location of building 609. Because of this error in site history, the Army sampled the wrong building location. Erroneously, Army samples came from the location of the old refrigerated warehouse, building 653. The location of the pesticide spill (over 100 feet east) has not been investigated or sampled. The Army, allowing this important error to continue in Army reports, has ignored comments submitted by community members (April 1996) documenting this error.

Community Cleanup Alternative *

The error in site history appears to be a fatal flaw in the building 609 investigation. The commissary site should be removed from the Feasibility Study report. A new investigation (starting from the beginning) is needed to evaluate the pesticide spill along with the forgotten motor pool complex and railroad gasoline pumping station.

* Community suggested cleanup alternative concept currently endorsed by:

Contamination FACT SHEET

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board
Contact:

Site

El Polin Spring

Description

El Polin Spring is located approximately 400 feet northwest of Julius Kahn playground in the central tributary of the Tennessee Hollow Watershed. The site is closely associated with Presidio history. More accurately described as a group of springs, El Polin Spring was once a major contributor of fresh water to a coastal marsh in the Crissy Field area that provided food and reeds to the native Ohlone people. The same series of springs was the main water supply of the Presidio in its first century as a military base, from the Spanish and Mexican periods through the first two or three decades of the American era.

In the 1820s and 1830s the spring was the site of a small community of settlers from the Mexican Presidio. One of two houses there was a timber dwelling that according to one story was built by Russian sailors for Juana Briones, a colorful character who married a Presidio cavalryman in 1820 and later provided visiting sea captains with vegetables and milk from a farm outside the Presidio. Sometime after the United States took over the Presidio in 1847 Army engineers constructed a reservoir to collect spring water at the site. The reservoir was later buried by portions of a dump site now referred to as Landfill 2. The flow of water at El Polin Spring and other springs throughout the Presidio diminished dramatically in the late 1800s and 1900s as a result of development and an extensive network of storm drains.

The Army began dumping materials in landfills located above El Polin Spring sometime in this century and continued disposal activities in this area until the 1970s. These landfills (now known as Landfill 2 and Fill Site 1) are the likely sources of surface water contamination at El Polin Spring.

Contaminants of Concern (found in amounts above background or regulatory standards)

Surface water: Cyanide, dissolved iron, dissolved mercury, hexavalent chromium, dissolved lead, aluminum, antimony, barium, beryllium, cadmium, copper, nickel, vanadium and zinc.

Hazards

Surface water and groundwater percolate through landfills above El Polin Spring and dissolve various chemical contaminants. Contaminated groundwater comes to the surface at the numerous springs in the El Polin Spring area and prevents use of the area as the drinking water source it once was. The ecological risk assessment in the Army's Remedial Investigation suggests that the surface water at El Polin Spring endangers various aquatic receptors in the environment.

Army Recommendation

No cleanup of surface water or sources of surface water contamination. "Institutional controls" (restrictions on future uses) for surface waters.

Community Reaction *

Army recommendation inadequate because cleanup insufficient and future uses not adequately considered. The source of contamination for surface water needs to be removed. Surface water should be monitored until the contamination is reduced below hazardous levels. The Army's suggested remedies do not adequately address the future uses of the site, which include restoration of the riparian corridor in the Tennessee Hollow Watershed. Clean water at El Polin Spring is an essential component of the plan to restore the Tennessee Hollow Watershed.

Community Cleanup Alternative *

Soil: Remove more and possibly all of the landfill materials and affected soils at Landfill 2 and Fill Site 1 above El Polin Spring. Landfill 2 and Fill Site 1 are candidates for complete removal of all soils under criteria set forth in the U.S. Environmental Protection Agency's "CERCLA Municipal Landfill Presumptive Remedy to Military Landfills." More complete excavation is also called for by the Presidio Landfill Closure Principles adopted by the Presidio Restoration Advisory Board in April 1997, which state that landfills should be excavated, fill materials recycled where appropriate, and material from fill sites consolidated at modern, appropriately-designed and monitored off-site disposal facilities.

Surface water and groundwater: Once sources of contamination are removed, monitoring over a period of five years is recommended. If the contaminated soil is removed the possibility of continued contamination of surface water will likely be sharply curtailed and the monitoring costs in the Army's recommendation will be reduced.

* Community suggested cleanup alternative concept currently endorsed by:

Contamination FACT SHEET

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board
Contact:

Site

Nike Missile Facility

Description

Former Nike Ajax missile magazines and support buildings located in a six-acre area east of Battery Caulfield Road in the southwestern part of the Presidio, north of the former Public Health Service Hospital. The site was operated as a missile battery from 1955 to 1963. After it was deactivated, the area was used by the Army for storage of items including vehicles and chemically treated telephone poles.

The site contains three large underground concrete structures (magazines) used for storing the missiles. A hydraulically operated elevator platform in the center of each magazine was used to raise the missiles to ground level for launching. (The Ajax missiles, the first generation of postwar guided surface-to-air missiles, carried conventional high explosives and did not use nuclear warheads.) The magazines are now closed and empty but still in place; tanks believed to contain 271 gallons of hydraulic fluid per magazine have not been removed. Standing water has been observed in each magazine. The ground-level elevator bay doors have been welded shut but have rusted through in some places. Each underground magazine consists of a large rectangular room (42' by 63' in two structures and 49' by 60' in the third) plus a small asbestos-lined "personnel shelter" to be used during missile firings. The site also contains two former administration and missile assembly buildings near Battery Caulfield Road.

Contaminants of Concern (found in amounts above background or regulatory standards)

Soil: Heavy metals: arsenic, cadmium, copper, lead, mercury, selenium, zinc. Petroleum hydrocarbons and polynuclear aromatic hydrocarbons (PAHs), PCBs

Groundwater: mercury, aluminum, chromium, manganese, nickel

Standing water in missile magazines: antimony, petroleum hydrocarbons (1" of floating product)

Hazards

Safety hazards to people, including children, from the rusting ground-level elevator doors above 10 foot fall into the empty magazines. Considerable evidence suggests a connection between standing water in the magazines and surrounding groundwater outside. The Army's Remedial Investigation stated that the relationship was uncertain. This connection raises the potential for pollution of the Lobos Creek drainage area by heavy metals and hydrocarbons. The standing water was found to be contaminated with antimony and hydraulic fluid and could become additionally polluted if the lead-based paint and asbestos deteriorate into the water over time. Mercury contamination of groundwater at the site may be spreading; mercury now detected in three widely spaced monitoring wells (Jan. 97) vs. a single well (Apr. 96).

Army Recommendation

Limited excavation of contaminated soil around storm drain outfalls. No cleanup of standing water or groundwater. "Institutional controls" (restrictions on future uses) for groundwater. Abandon facility missile magazines "as is" in place.

Community Reaction *

Army recommendation inadequate because cleanup insufficient and safety hazards not addressed. Reuse options severely limited. Groundwater threatened and not available for emergency drinking water resource even though individual site wells do exceed sustained yield of 200 gallons per day, one of the criteria for a drinking water resource. Lobos Creek water quality potentially threatened.

Community Cleanup Alternative *

- Missile Magazines:**
1. Remove contaminated water from the magazines.
 2. Drain and remove hydraulic oil tanks from magazines to prevent future contamination.
 3. Reduce safety hazard by filling the magazines with sand or sand-slurry and capping the openings with compacted backfill or concrete, or by removing entire structure and backfilling.
 4. Remove asbestos and lead-based paint from magazines.

Soil: Conduct more extensive excavation and confirmation sampling around contamination locations to ascertain more completely the extent of pollution.

Groundwater: Identify and remove or contain source of mercury contamination to prevent further contamination. Provide for groundwater treatment if mercury levels do not decrease appropriately over time.

* Community suggested cleanup alternative concept currently endorsed by:

Contamination FACT SHEET

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board
Contact:

Site

Buildings 937 and 979 at Crissy Field

Description

Building 937, a former airplane hangar, and Building 979, a former vehicle maintenance building and gas station, are located at the far west end of Crissy Field near the end of Mason Street and between the Fort Point Wharf and the former Coast Guard Station. Built in 1921 over sand and fill, Building 937 is located approximately 400 feet from the San Francisco Bay. It was originally constructed as an airplane hangar and was later designated as the main vehicle maintenance shop for most of the vehicles used at the Presidio. Two 1,000 gallon capacity and one 500 gallon capacity underground storage tanks (USTs) located adjacent to the building were used to store waste oils, paint, lacquer thinners, diesel fuels, carburetor cleaners, and degreasing solvents. Sandblast grit and paint chips were also stored next to Building 937.

Building 979 was located approximately 660 feet northwest of Building 937 and was approximately 200 feet from the bay. It was constructed as a mine storage facility in the early 1900s and demolished in 1996. It was used for multiple purposes throughout its history including as a gas station and most recently a storage area for construction materials and paints and thinners.

Groundwater under these buildings has been determined to flow in the direction of the bay. During a sampling analysis of the groundwater in 1981, the Army identified up to 6 feet of "free product" (petroleum hydrocarbons) floating on the groundwater under Building 937. While some contamination was removed under a cleanup order issued by the Regional Water Quality Control Board on 5/15/91 "free product" continues to be found in the groundwater at this location.

Contaminants of Concern (found in amounts above background or regulatory standards)

Soil and Groundwater: Copper, antimony, cadmium, mercury, lead, zinc. BTEX compounds, chlorinated solvents and diesel fuel. Other contaminants exceeding of maximum contaminant levels were found at stormwater Outfalls 12, 13 and 16 located nearby in the bay. At Outfall 16 arsenic, chromium and copper levels are probably linked to pollution stemming from activities at Building 979.

Hazards

Solvent contamination of groundwater has likely spread beyond limits indicated by the Army and is currently discharging to the San Francisco Bay. The Army's investigation did not adequately address the potential hazards of co-mingled plumes containing petroleum-based constituents and solvents and their resulting hazardous breakdown products.

Army Recommendation

No cleanup of groundwater. "Institutional controls" (restriction on future uses) for groundwater. (Note: An experimental Unterdruck-Verdampfer-Brunnen (UVB) system was installed in August 1994 near the northeast corner of Building 937 to clean up the groundwater. It has never been effective, however.) Limited excavation of contaminated soils.

Community Reaction *

Army recommendation inadequate because cleanup insufficient and pollution of soil, groundwater and bay not adequately addressed. Pollutants discharged have affected the groundwater and soils beneath the 900-Series Buildings. Pollutants have migrated laterally and have affected adjacent soils and groundwater at the site and are discharging into the bay at Crissy Field. The Army's groundwater contaminant plume maps (petroleum and solvent based) do not correctly indicate the likely contamination of bay waters. There has been incomplete excavation of potential source of contaminants in the soils under Building 937.

Community Cleanup Alternative *

Soil: 1. Continue excavation under Building 937 to ensure the removal of all the potential sources of contamination.

Groundwater: 1. Extend monitoring to bay shore to determine scope of plumes' lateral movement towards the bay. 2. Protect coastal resources from high tide to 100 feet inland as required by the U.S. Coastal Zone Management Act of 1972 for certain waterways discharging to the bay (affected groundwater), and marine wetlands. 3. Investigate and remove delapidated terra cotta storm drains. In addition, continue monitoring at Outfall 16. 4. Investigate active bioremediation and containment of pollutant discharges to the Bay.

* Community suggested cleanup alternative concept currently endorsed by:

Contamination FACT SHEET

The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board
Contact:

Sites Not Investigated

Description

A large number of sites for which there was historical evidence of former Army operations that could have significantly contaminated soil or groundwater were reported to the Army by a community member of the Presidio Restoration Advisory Board in early 1996. The sites which had not been investigated by the Army for contamination include former dump areas, maintenance and repair facilities, and sites of potential hazardous waste releases. They were identified through research in archives of historical Army maps, blueprints and other Presidio documents. The Restoration Advisory Board has not received a response to this research. There is no indication that the Army incorporated this information into its remedial investigations.

The following are 10 examples from the list submitted to Army representatives.

Building

Number	Date	Site Description and Operation with Potential Contamination
M30	1939	Gas Station, 3 underground storage tanks, grease rack, motor repair in adjacent bldgs M22, M26.
95	unknown	Ammunition magazine
534	1974	Fuel depot on Sherman Road in residential housing area
560	1946	Photo shop, dark room
613	1922	Paint shop, motor repair shop, motor transport school
660	1941	Metal salvage center, former printing shop, blacksmith shop
1221	1946	Post exchange gas station
1242	1961	Dental laboratory, chrome casting room
1286	1969	Arms room
1300 area	1954	Dump zone near Battery Godfrey, metal salvage
1339	unknown	Ordnance repair shop

Contaminants of Concern (found in amounts above background or regulatory standards)

Soil and groundwater: Potential contamination by petroleum hydrocarbons, heavy metals, PCBs, ordnance, acids, paints, solvents, photographic chemicals,

Hazards

Potential hazards have not been investigated and remain unknown.

Army Recommendation

No Army response to the advisory board.

Community Reaction *

Army response inadequate because investigation has been insufficient. This omission may have significant implications for future users of sites identified as having such operations, particularly for lessors of buildings or sites that may be contaminated.

Community Cleanup Alternative *

Soil and groundwater: Conduct the necessary and appropriate investigation of identified sites in a timely fashion.

* Community suggested cleanup alternative concept currently endorsed by: